WHAT IS CLAIMED IS:

1. A method of transferring data between ports of an Ethernet switch device having a switching element and a plurality of subsystems, each of which is connected to one of said ports and has an address table, a media access controller, a router including a destination address register, said optical switching element including a plurality of sources of optical energy and a plurality of optical detectors, said method comprising:

associating each of said plurality of subsystems with a holographic transform function, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems;

receiving a signal containing data and network addressing information, with said network addressing information including an address of one of said plurality of ports, defining a receiving port;

producing, with one of said plurality of sources under control of said router and said media access controller, said optical energy modulated with said data, defining modulated optical energy;

transforming said modulated optical energy with said holographic transform function associated with said receiving subsystem;

sensing data associated with said modulated optical energy; and

transferring said data, as electrical signals, to the port associated with said receiving subsystem.

2. The method as recited in claim 1 wherein transforming said modulated optical energy forms transformed optical energy and sensing said data associated with said modulated optical energy further includes performing an inverse transform on said transformed optical energy, before sensing said modulated optical, to retrieve said modulated optical energy.

3. The method as recited in claim 1 further including placing in optical communication with each of said plurality of sources, a first focusing transform element having a first holographic transform function associated therewith, with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources and placing in optical communication with each of said plurality of detectors, a second focusing transform element having a second holographic transform function associated therewith, with the second holographic transform function associated with one of said plurality of sources being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said first holographic transform functions.

4. The method as recited in claim 1 wherein receiving a signal containing data and network addressing information further includes receiving said network address information in said destination address register and comparing a subportion of said network addressing information with information stored in said address table to ascertain to which of said plurality of ports said media access controller may transfer data.

5. The method as recited in claim 1 further including storing within said address table a plurality of network addresses, each of which being a 64-bit word including CONTROL information, AGE information, PORT_NO information and NET_ADDR information.

6. The method as recited in claim 3 wherein associating each of said plurality of subsystems with a holographic transform function, further includes placing each of said plurality of subsystems in electrical communication with all of said plurality of sources.

7. The method as recited in claim 3 wherein associating each of said plurality of subsystems with a holographic transform function, further includes placing each of said plurality of subsystems in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems.

8. An Ethernet switching device, comprising:

a plurality of subsystems, each of which includes an address table, a media access controller, a router including a destination address register,

an optical switching element in data communication with each of said plurality of subsystems, said optical switching element including a plurality of holographic transform function, each of which is associated with one of said plurality of subsystems, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems; and

a plurality of ports, each of which is connected to one of said plurality of subsystems.

9. The method as recited in claim 8 wherein said address table further includes a plurality of network addresses, a subportion of which comprises of a 64-bit word having a structure in accordance with an Ethernet standard and including CONTROL information, AGE information, PORT_NO information and NET_ADDR information.

10. The switching device as recited in claim 8 wherein said optical switching element further includes a plurality of sources of optical energy and a plurality of optical detectors, and said plurality of transform functions are defined by first and second focusing transforms in optical communication with said plurality of sources, with said first focusing transform being in optical communication with each of said plurality of sources and having a plurality of first holographic transform functions associated therewith, with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources.

11. The switching device as recited in claim 10 wherein said second focusing transform further includes a plurality of second holographic transform functions, with the second holographic transform function associated with one of said plurality of detectors being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said plurality of first holographic transform functions.

12. The switching device as recited in claim 11 wherein each of said plurality of subsystems is in electrical communication with each of said plurality of optical sources.

13. The switching device as recited in claim 11 wherein each of said plurality of subsystems are in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems.

14. An Ethernet switching device, comprising:

a plurality of subsystems, each of which includes an address table, a media access controller, a router including a destination address register,

an optical switching element in data communication with each of said plurality of subsystems, said optical switching element including a plurality of sources of optical energy, a plurality of optical detectors, and a plurality of holographic transform functions, each of which is associated with one of said plurality of subsystems, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems;

a plurality of ports, each of which is connected to one of said plurality of subsystems; and

means for associating each of said plurality of subsystems with one of said plurality of a holographic transform functions, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems.

15. The switching device as recited in claim 14 further including means for producing, with one of said plurality of sources under control of said router and said media access controller, said optical energy modulated with said data, defining modulated optical energy and means for transforming said modulated optical energy with said holographic transform function associated with said receiving subsystem.

16. The switching device as recited in claim 14 wherein said address table further includes a plurality of network addresses, a subportion of which comprises of a 64-bit word having a structure in accordance with an Ethernet standard and including CONTROL information, AGE information, PORT_NO information and NET_ADDR information.

17. The switching device as recited in claim 16 further including means for comparing a subportion of said network addressing information with said plurality of addresses to ascertain to which of said plurality of ports said media access controller may transfer data.

18. The switching device as recited in claim 14 wherein said means for associating each of said plurality of subsystems with one of said plurality of a holographic transform functions further includes first and second focusing transforms in optical communication with said plurality of sources, with said first focusing transform being in optical communication with each of said plurality of sources and having a plurality of first holographic transform functions associated therewith, with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources and said second focusing transform further includes a plurality of second holographic transform functions, with the second holographic transform function associated with one of said plurality of detectors being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said plurality of first holographic transform functions.

19. The switching device as recited in claim 18 wherein each of said plurality of subsystems is in electrical communication with each of said plurality of optical sources.

20. The switching device as recited in claim 18 wherein each of said plurality of subsystems are in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems.